

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) A proton conducting ~~material membrane~~ which is formed by crosslinking a unit structure of a layered clay mineral, wherein a polyvalent metal ion, which does not naturally exist in said layered clay mineral, is incorporated between layers of said layered clay mineral.

2. (Currently Amended) The proton conducting ~~material membrane~~ according to claim 1, wherein the unit structure of the layered clay mineral is crosslinked with a tetrafunctional alkoxide or a trifunctional alkoxide.

3. (Currently Amended) The proton conducting ~~material membrane~~ according to claim 2, wherein the crosslinking tetrafunctional alkoxide or trifunctional alkoxide incorporates a strong acid group.

4. (Currently Amended) The proton conducting ~~material membrane~~ according to claim 1, wherein a cationic surfactant is incorporated between layers of the layered clay mineral.

5. (Currently Amended) The proton conducting ~~material membrane~~ according to claim 1 wherein the unit structure of the layered clay mineral is crosslinked with an alkoxide having a ~~bulky functional group-and small interaction~~.

6. (Currently Amended) The proton conducting material membrane according to claim 1 wherein the unit structure of the layered clay mineral is crosslinked with bis-alkoxysilane.

7. (Currently Amended) The proton conducting material membrane according to claim 1 wherein the unit structure of the layered clay mineral is crosslinked with an alkoxysilane having an epoxy ring.

8. (Currently Amended) A method for producing a proton conducting material membrane which comprises the steps of: adding water to a layered clay mineral for obtaining a dispersed solution; adding a crosslinking agent to the dispersed solution for obtaining a developing liquid; developing the developing liquid on the substrate for obtaining a developing layer; heating and drying the developing layer for obtaining a ~~thin~~-membrane; and immersing the ~~thin~~-membrane in an aqueous solution containing polyvalent ions, and drying.

9. (Cancelled)

10. (Original) A method for producing a proton conducting membrane which comprises the steps of: producing a proton conducting material according to the method according to claim 8; dissolving or dispersing the proton conducting material for

preparing a solution or a sol; and gelating by the removal of solvent from the solution or sol.

11. (Currently Amended) A solid polymer fuel cell comprising a membrane electrode assembly (MEA) which comprises (a) a polymer solid electrolyte membrane; and (b) a gas diffusion electrode, which electrode couples with the electrolyte membrane and has as a main constituent material an electrode catalyst which comprises a conductive carrier that supports a catalytic metal and a proton conducting material membrane, wherein the polymer solid electrolyte membrane and/or the proton conducting material membrane is the proton conducting material membrane according to claim 1 or ~~proton conducting membrane according to claim 9~~.